Dorsal Intercarpal Ligament Instability Deformity Following Resection Arthroplasty of the Scaphotrapezotrapezoidal Joint.
Moheb Moneim MD, Deana Mercer MD
1. UNM Department of Orthopaedics & Rehabilitation

Carpal collapse manifested as dorsal intercarpal ligament instability (DISI) deformity may follow partial excision of the distal scaphoid when treating arthritis of the scaphotrapezotrapezoidal (STT) joint or persistent scaphoid nonunion. It has also been reported following complete excision of the trapezium. The incidence is low and some patients may already have this deformity preoperatively. The etiology is unclear and there is no consensus in the literature of how to manage this problem as there is a paucity of long term follow up.

The authors are presenting a case of DISI deformity following partial excision of the distal scaphoid for STT arthritis. The case was treated by repair of the redundant scapholunate ligament and K wire fixation following correction of the DISI deformity. The purpose of this report is to discuss the significance and the management of this deformity.

Case Report
A 50 year old woman was seen in the office complaining of pain in her right wrist for 6 months. She was unable to pick up objects or open jars because of the pain. On examination she was found to have localized tenderness at the base of the thumb and the distal scaphoid, with pain on radial and ulnar deviation of the wrist. She had no tenderness when the first metacarpal was manipulated against the trapezium. X-ray showed advanced degenerative changes at the STT joint with normal alignment at the midcarpal joint (Figure 1). Several weeks later she had no relief from splinting and non-steroidal medications. Resection of the distal scaphoid with tendon interposition through a volar incision was carried out.

The patient continued to have pain in her wrist. X-ray showed a midcarpal instability with clear evidence of DISI deformity (Figure 2). A magnetic resonance image (MRI) of the wrist showed a tear of the scapholunate ligament, increased T2 signal intensity between the remaining scaphoid and the capitate, and confirmed the DISI deformity (Figure 3).

Three months following the resection of the scaphoid the patient was taken back to surgery. The wrist joint was exposed through a dorsal incision. The scapholunate ligament was redundant with evidence of synovitis. The ligament was repaired after reduction of the DISI deformity and a pin was inserted from the radius into the scaphoid and capitates and another from the radius into the lunate and hamate (Figure 4). The patient was splinted and the pins were removed 6 weeks later. A year afterwards, she continued to have some pain in her wrist with good range of motion. A radiograph showed residual but improved DISI deformity. She was later treated for synovitis of the first extensor compartment.

Discussion
Carpal collapse presenting as DISI can present following excision of the distal scaphoid for persistent nonunion of the scaphoid or for treating scaphotrapezial trapezoidal arthritis. It has also been reported following trapezial excision.
References


Figure 3: a and b. MRI of the wrist demonstrating tear of the scapholunate ligament, bone edema in the distal scaphoid and capitate, as well as DISI deformity.

for treating basal joint arthritis of the thumb. Few patients with arthritis of the STT or basal joint may have this finding at initial presentation. There are some reports in the literature discussing this deformity, but there is no consensus on how to treat this problem if it occurs following surgery. The clinical relevance of this X-ray finding is also not clear, as some patients are symptomatic. The etiology is not clear. We suggest that there are strong ligaments between the distal scaphoid and the capitate that may be disrupted which will allow the scaphoid to flex and the scapholunate ligament to become deficient and the carpus to collapse. Additional work is needed in this area. Caution is required before recommending this procedure for patients with arthritis of the scaphotrapezial trapezoidal joint. This patient should exhaust all non-operative modalities of treatment.

Figure 4: a and b. AP and lateral x-ray at a final follow up showing persistent DISI deformity.